

What is claimed:

1. Multilayer composite filter medium for serial filtration with an onflow side and an outflow side with respect to a medium to be filtered, the filter medium comprising at least two filter layers of the same or different filter media and the filter layers being welded to one another at defined points and/or areas over the complete surface, and at least one filter medium being arranged on the onflow side and at least one filter medium being arranged on the outflow side.
2. Multilayer composite filter medium according to claim 1, wherein at least one filter layer comprises woven filter fabric and at least one filter layer comprises nonwoven mat.
3. Multilayer composite filter medium according to claim 1, wherein thermoplastic filter media are used.
4. Multilayer composite filter medium according to claim 1, wherein the particle retention of nonwoven filter mat is $> 60\mu\text{m}$.
5. Multilayer composite filter medium according to claim 1, wherein the particle retention of the woven filter fabric is 10 to $60\mu\text{m}$.
6. Multilayer composite filter medium according to claim 1, wherein the nonwoven filter mat and woven filter fabric comprise the same thermoplastic material.
7. Multilayer composite filter medium according to claim 1, wherein the welding points or welding areas make up 0.5 to 15% of the surface of the composite filter medium.

8. Multilayer composite filter medium according to claim 1, wherein the welding points are arranged in the form of a grid on the surface of the filter medium.

9. Method of producing the composite filter medium comprising the steps of:

arranging filter layers one on to of the other and introducing the filter layers into a gap between an upper mould and a lower mould;

moving the filter layers between the upper mould and lower mould and welding them to one another at defined points and/or areas by activation of energy; and

after the welding, removing the bonded filter layers from the mould.

10. Method according to claim 8, wherein the welding takes place by ultrasonic energy between a sonotrode and an anvil.

11. Method according to claim 8, wherein the welding takes place by thermal heating.

12. Method according to claim 10, wherein the woven filter fabric side lies on the side facing the sonotrode during the ultrasonic welding.

13. Multilayer composite filter medium according to claim 1, wherein the filter medium is located in engine oil filters, transmission oil filters, fuel filters or air filters.

14. Multilayer composite filter medium according to claim 1, wherein the multilayer filter medium is located in a filter.

ATTORNEY REF. NO. 87361.3380

PATENT

15. Multilayer composite filter medium according to claim 1, wherein the filter medium has a flat or pocket-shaped or pleated form.